Bruhath Bengaluru Mahanagara Palike

QUALITY ASSURANCE/QUALITY CONTROL REPORT

Office of the Chief Engineer (Quality Assurance/Control) Annexure-05,
BBMP Head Office, Hudson circle Bengalore-001,
Ph.no:08022975541, E-mail ID:qualitycontrol.bbmp@gmail.com

QUALITY ASSURANCE REPORT/QUALITY CONTROL REPORT

SE/QA/PR/ 26 /2022-23, DATE: 30/12/22		
Name of Work	:	Construction of Samudhaya Bhavana Building and Bus shelter & providing grill fencing and other development works at 407 SFS park, 707 SFS park, Sri Madivala Machideva park and Major Sandeep Unnikrishnan Park of Yelahanka Assembly Constituency Under Amrutha Nagarothana Grants (PACKAGE-02). Estimated cost 1000.00 Lakhs
Job Code	:	003-23-000002
Bill No.	:	**1st & Part Bill**
Type of Test Performed	:	Rebound Hammer test as per IS13311-(2)-1992.
Materials on which Tests Was Performed	:	1.Kerb (M20) 2.Cycle Track (M20) 3.Plinth Beam (M25)
Officers present during inspection	:	1.Sri.Anjaneyalu.B.R. AE - Project division Yelahanka zone 2. Sri C. Shridhar. AEE-Quality Assurance
Project Management Consultants	:	**Tejus Consultants.**
Observations	:	➢ NDT (Rebound hammer test) was conducted in presence of AE (Project division Yelahanka zone) along with Project Management Consultants representative. ➢ The work was inspected from Quality Assurance Division on 30.10.2022 when Concrete Platform work Beneath benches was under progress at Madivala Machideva Park. Concrete cubes were casted and tests were conducted after 28days. Test reports submitted by PMC is here by furnished. ➢ The Rebound Hammer Test was conducted randomly on Kerb stone, Cycle track and Plinth Beam and randomly Interlock pavers were tested in PMC Lab ➢ The readings of Rebound Hammer Test are tabulated and analysis of test results done by PMC is here by furnished. ➢ The location wise test results are reproduced in the tables shown below.
Test Locations	:	Location 1 Unni Krishnan cycle track (Beside Ambedkar Park) Location 2: Madivala Machideva Park. (Near Entrance) Location 3: G.P Rajaratnam Park (Behind H.No.226) Location 4: Attur Bus Stop Yelahanka.

30/12/22

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ ಉಪ-ವಿಭಾಗ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

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Table-01: Rebound Hammer Test Results for Location-1

Sl. No.	Member	Rebound Hammer Number	Average reading	Compressive Strength (N/mm2) for 28 days	Impact Direction
Sample Tested Location at Unni Krishnan cycle track (Beside Ambedkar Park)					
1	Kerb Stone	30	30	20.00	Horizontal
2		29			Horizontal
3		31			Horizontal
4		29			Horizontal
5		31			Horizontal
6		32			Horizontal
1	Cycle Track	27	28	22	Vertical down
2		29			Vertical down
3		28			Vertical down
4		27			Vertical down
5		28			Vertical down
6		28			Vertical down

Table-02: Rebound Hammer Test Results for Location-2

Sl. No.	Member	Rebound Hammer Number	Average reading	Compressive Strength (N/mm2) for 28 days	Impact Direction
Sample Tested Location at Madivala Machideva Park. (Near Entrance)					
1	Kerb Stone	30	30.83	20.50	Horizontal
2		32			Horizontal
3		32			Horizontal
4		31			Horizontal
5		30			Horizontal
6		30			Horizontal

Table-03: Rebound Hammer Test Results for Location-3

Sl. No.	Member	Rebound Hammer Number	Average reading	Compressive Strength (N/mm2) for 28 days	Impact Direction
Sample Tested Location at G.P Rajaratnam Park (Behind H.No.226)					
1	Kerb Stone	32	31.00	21.80	Horizontal
2		30			Horizontal
3		31			Horizontal
4		30			Horizontal
5		32			Horizontal
6		31			Horizontal

Table-04: Rebound Hammer Test Results for Location-4

Sl. No.	Member	Rebound Hammer Number	Average reading	Compressive Strength (N/mm2) for 28 days	Impact Direction
Sample Tested Location at Attur Bus Stop Yelahanka.					
1	Plinth Beam	30	31	26.00	Vertical down
2		30			Vertical down
3		32			Vertical down
4		30			Vertical down
5		31			Vertical down
6		30			Vertical down

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TEST REPORT OF INTER LOCK PAVERS

Location: G.P Rajaratnam Park								
Sl No	Date of Casting*	Date of Testing	Weight Of Sample	Age in days	Load (KN)	Cross Sectional Area	Compressive Strength (N/ mm2)	Avg. Value
1	11-10-22	22-12-22	3.63	72	850	28000	30.36	30.21
2	"	"	"	"	849	"	30.32	
3	"	"	"	"	842	"	30.07	
4	"	"	"	"	846	"	30.21	
5	"	"	"	"	843	"	30.11	
6	"	"	"	"	845	"	30.18	

Location: Unni Krishnan cycle track (Beside Ambedkar Park)								
Sl No	Date of Casting*	Date of Testing	Weight Of Sample	Age in days	Load (KN)	Cross Sectional Area	Compressive Strength (N/ mm2)	Avg. Value
1	11-10-22	22-12-22	5.36	72	1200	40000	30.00	30.66
2	"	"	"	"	1226	"	30.65	
3	"	"	"	"	1263	"	31.58	
4	"	"	"	"	1214	"	30.35	
5	"	"	"	"	1219	"	30.48	
6	"	"	"	"	1236	"	30.90	

Location: Unni Krishnan cycle track (Beside Ambedkar Park)								
Sl No	Date of Casting*	Date of Testing	Weight Of Sample	Age in days	Load (KN)	Cross Sectional Area	Compressive Strength (N/ mm2)	Avg. Value
1	11-10-22	22-12-22	2.68	72	608	20000	30.40	30.27
2	"	"	"	"	602	"	30.10	
3	"	"	"	"	601	"	30.05	
4	"	"	"	"	595	"	29.75	
5	"	"	"	"	614	"	30.70	
6	"	"	"	"	612	"	30.60	

TEST REPORT OF CEMENT CONCRETE CUBES

Location: Maha Yogi Vemanna Park Sample grade/Age: M20 / 7Days Compressive Strength								
Sl. No.	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Comp ressive strengt h	Average Compressive Strength
			(mm)	(Sq.mm)	(kg)	(KN)	(N/mm 2)	(N/mm2)
1	31/10/22	07/11/22	150x150x150	22500	8.832	312	13.69	13.84
2	31/10/22	07/11/22	150x150x150	22500	8.742	281	13.96	
3	31/10/22	07/11/22	150x150x150	22500	8.648	286	13.87	

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Location: Maha Yogi Vemanna Park
Sample grade/Age: M20 / 28Days Compressive Strength

Sl. No.	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
			(mm)	(Sq.mm)	(kg)	(KN)	(N/mm2)	(N/mm2)
1	31/10/22	28/11/22	150x150x150	22500	8.224	514	22.84	22.76
2	31/10/22	28/11/22	150x150x150	22500	8.324	509	22.62	
3	31/10/22	28/11/22	150x150x150	22500	8.420	513	22.80	

Conclusion:

The file containing 1st & part bill has been submitted for the above work to QA department on 21-12-2022 requesting for spot inspection. Engineers of QA/QC division have visited the work spot on 22.12.2022.

During the inspection, it was observed that the items found in the bill, have been executed by the contractor. PMC team was instructed to assess the strength of concrete used for Kerb stone (M20), Cycle track (M20) and Plinth Beam (M25) by conducting NDT using rebound hammer test method.

From the test results furnished by PMC consultants, it is concluded that the results of the samples collected are in accordance with the standards/ specifications mention in the IRC codes. However, the results submitted by the PMC have been reproduced here with for further needful action. The results checked by QA/QC relates only for item tested in the particular location randomly.

Further, QA/QC directs the PMC and Engineer in-charge of the work that all materials used for the work shall be inspected, tested and accepted as per the relevant specifications before incorporation in the work. The frequencies and methods of sampling and testing materials, including those required for definite purpose and not covered by MORT&H specifications shall be in accordance to the relevant IRC or BIS or AASHTO/ASTM/BS standards in order of priority.

All materials or work not conforming to the requirements of the specifications shall be considered unacceptable and rejected. The unacceptable materials or works that are rejected shall be immediately removed unless the defects are corrected and approved by the engineer in-charge of work.

This work was inspected on 30.10.2022 as per the request of engineer in charge of work when Concrete Platform work Beneath benches was under progress at Madivala Machideva Park. Further work progress / request for inspection was not intimated to QA division apart from the above-mentioned dates & now presently the bill submitted for the work. Therefore, randomly NDT (Rebound Hammer Tests) were conducted as explained in this report.

Engineer in charge of work shall ensure that Observations raised during inspection from QA division shall be complied (vide PR No QA/QC/11/22-23 dated 16-11-2022) certified by competent authority of respective zone and necessary action to be taken accordingly & also to adopt observations/instructions for the work

The concerned Engineer in charge of the work shall follow the direction issued by Chief Commissioner Letter number dated 01.08.2022 and 14.09.2022 and take necessary action as appropriate in accordance with the law.

Note: -

This report by QA/QC is pertaining to the work carried out in 1st & part bill only. Therefore, further QA/QC reports shall be obtained for the items of work carried out in future Running Account bill / Final bill.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು ಅಧೀಕ್ಷಕ ಅಭಿಯಂತರರು
ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ ಉಪ-ವಿಭಾಗ ಯಲಹಂಕ ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ ವಿಭಾಗ ಯಲಹಂಕ ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

Safety precautions shall be taken at work spot to prevent any mishap, injuries or loss of life to general public and construction workers according to guidelines laid down in code of practices.

Engineer in charge of work shall obtain requisite approval and Implement traffic management plan prior to commencement of work.

Engineer in charge of work shall display details of work, work code, cost of project, start and completion date, and information of Engineer in charge of work with contact numbers at work spot.

30/11/2022

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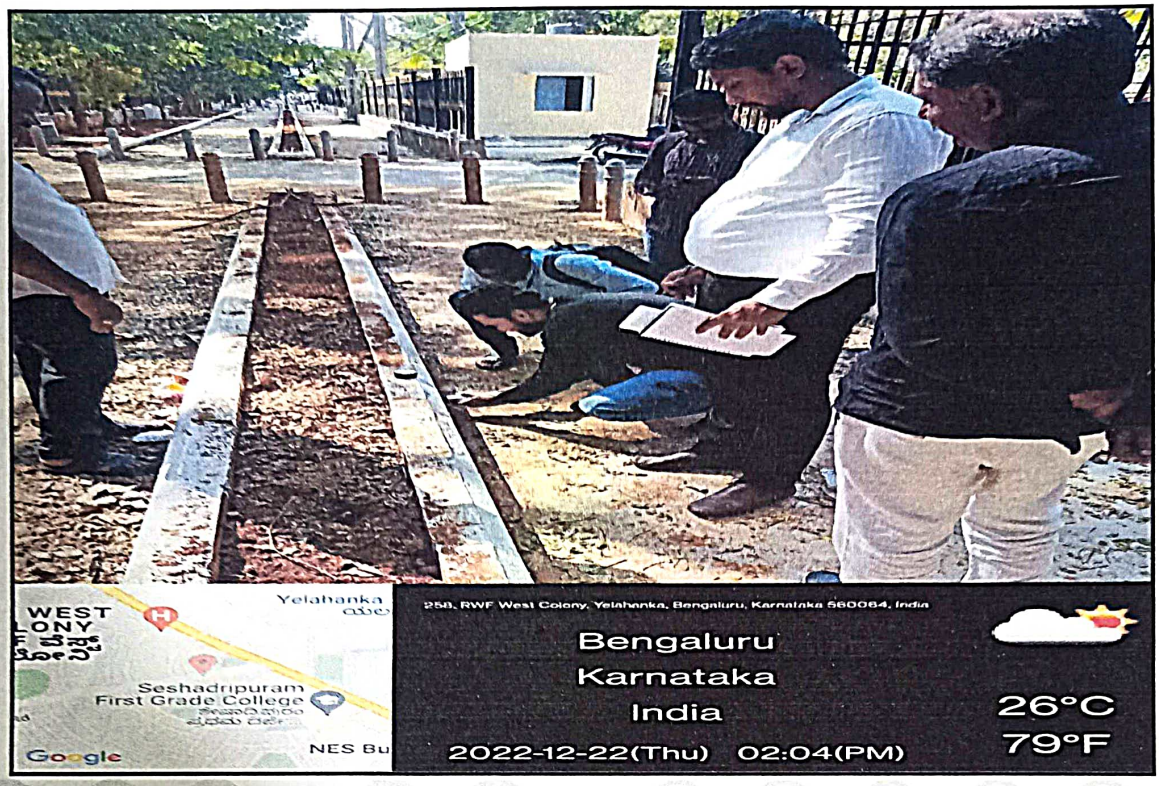
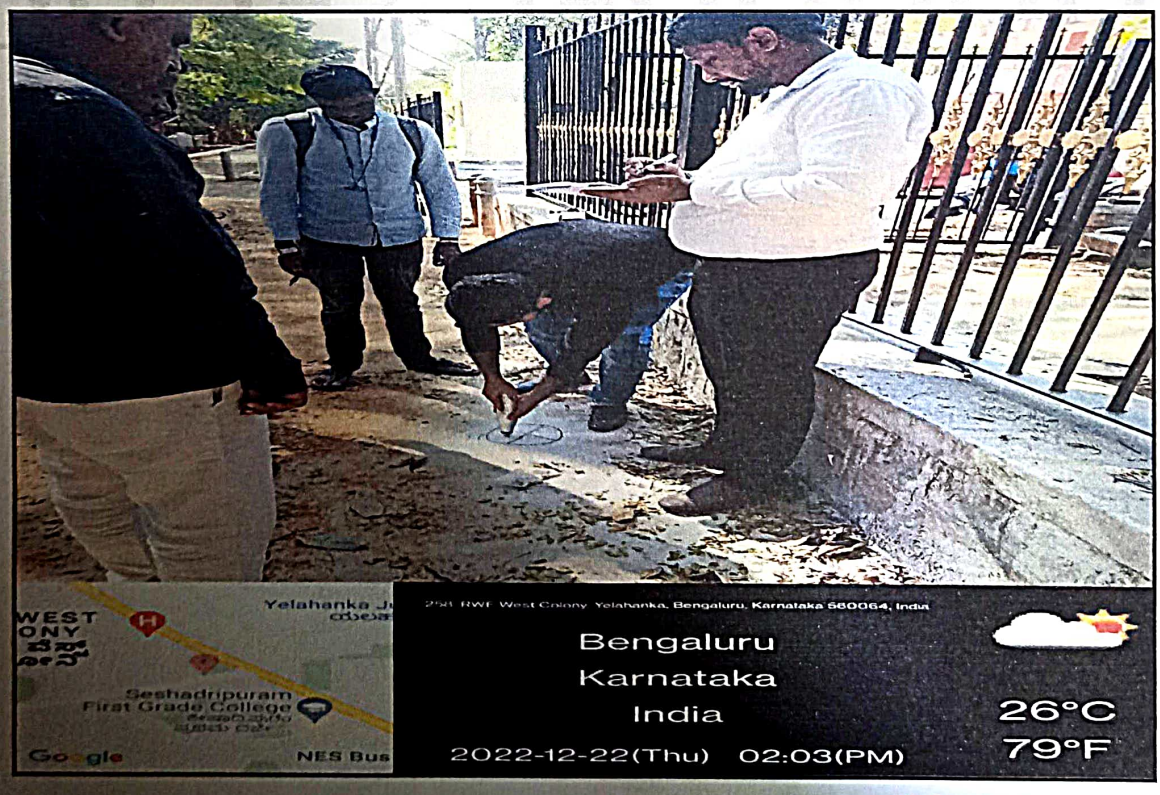
003-23-000002

Location 1: Unni Krishnan cycle track (Beside Ambedkar Park)





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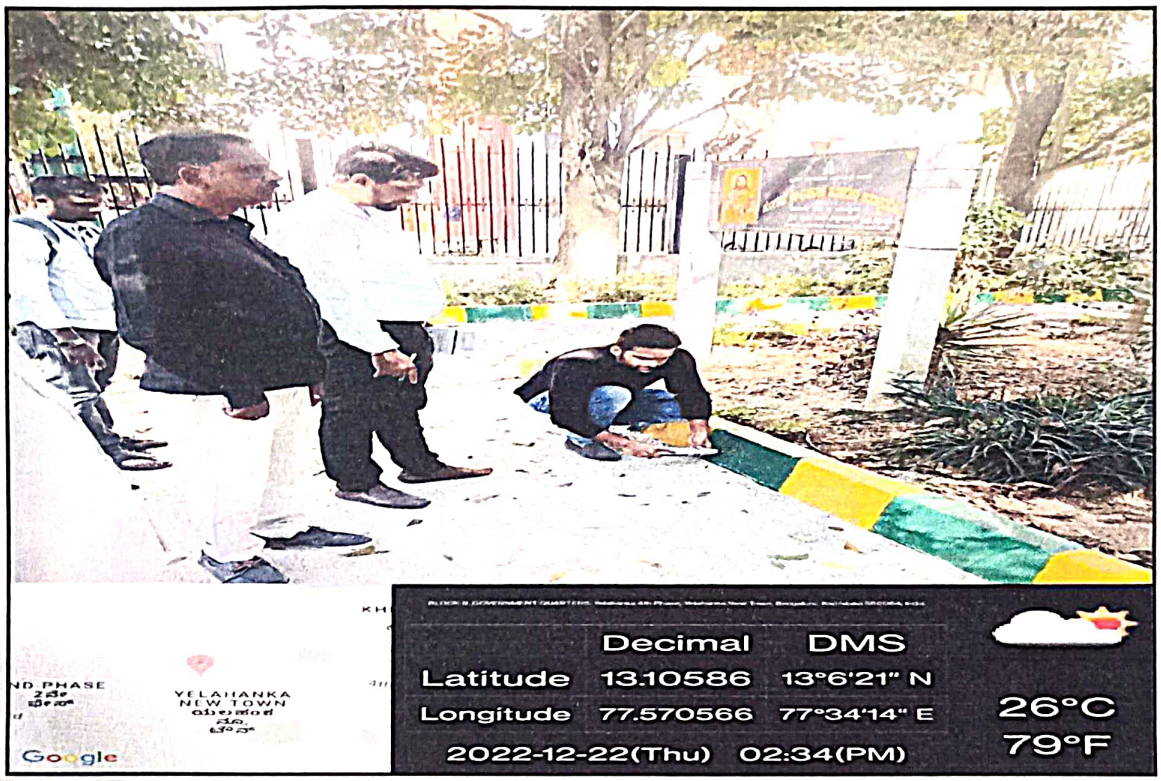
003-23-000002

Location 2: Madivala Machideva Park. (Near Entrance)



ಕಾಯಪಾಲಕ ಅಭಿಯಂತರರು

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Location 3: G.P Rajaratnam Park (Behind H.No.226)

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ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು 30/11/22
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Location 4: Attur Bus Stop Yelahanka.

003-23-000002

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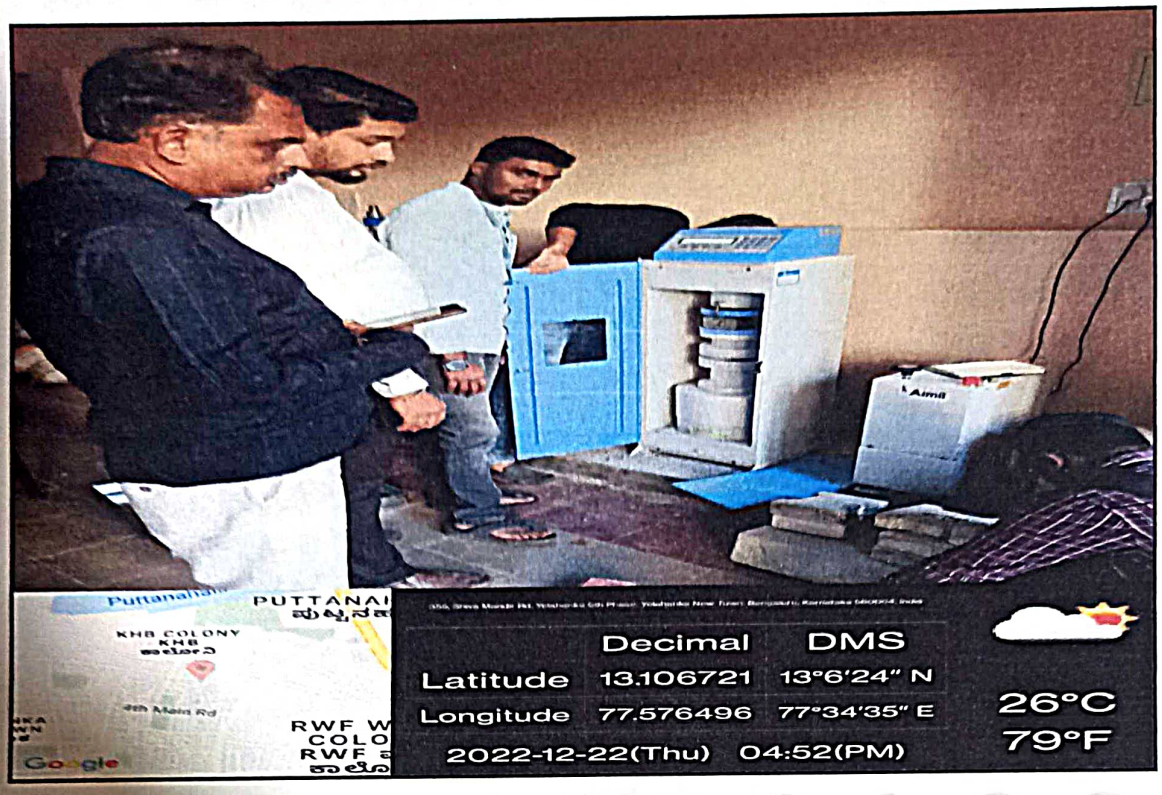
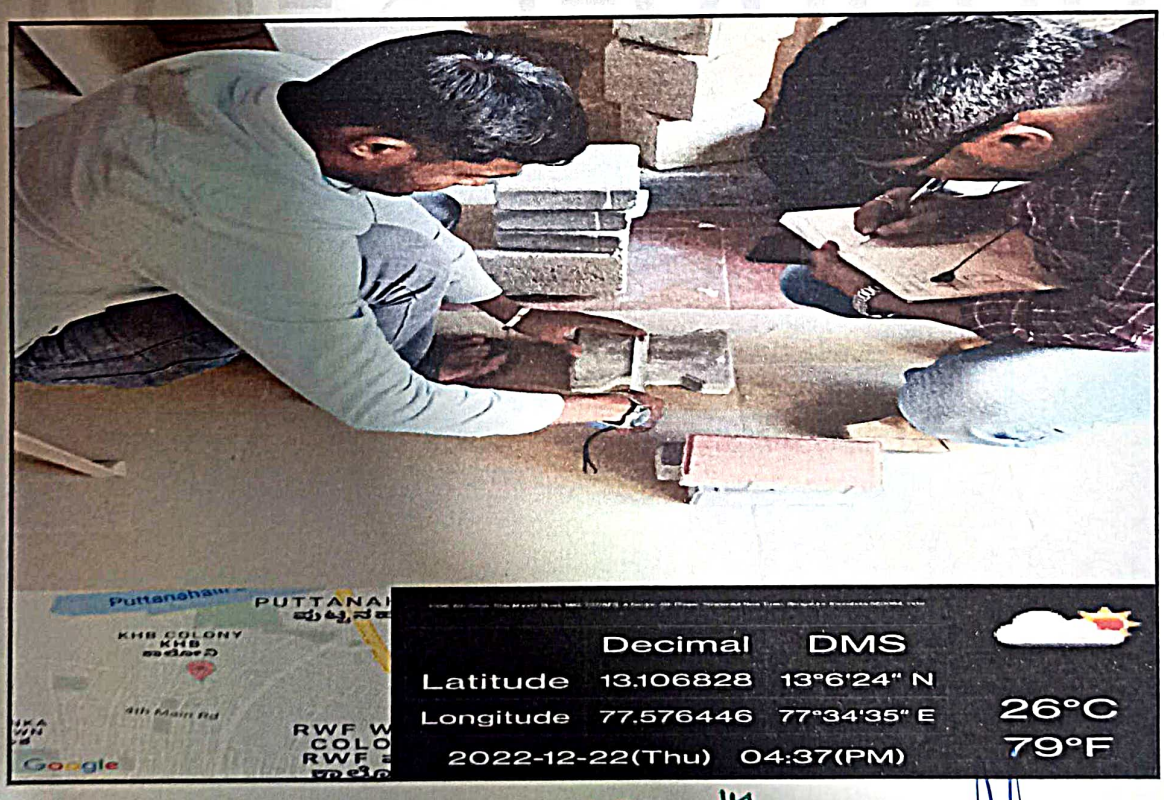
Inter locking pavers Testing in PMC lab





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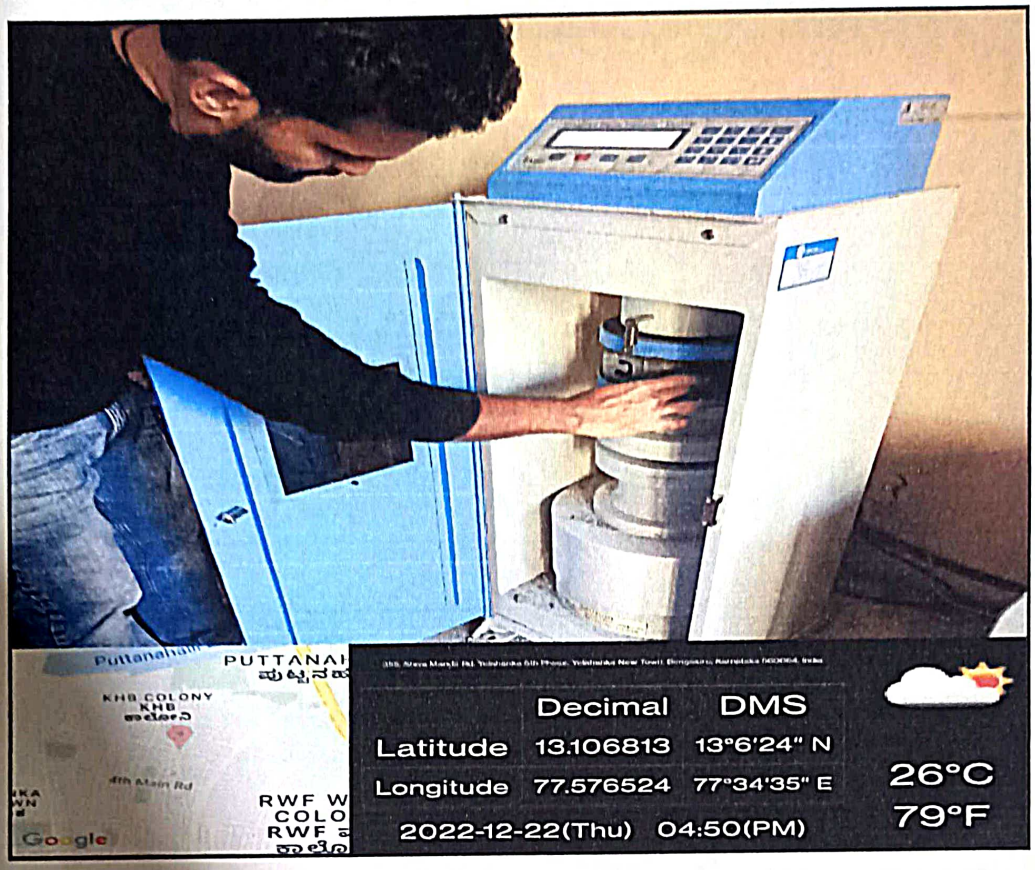
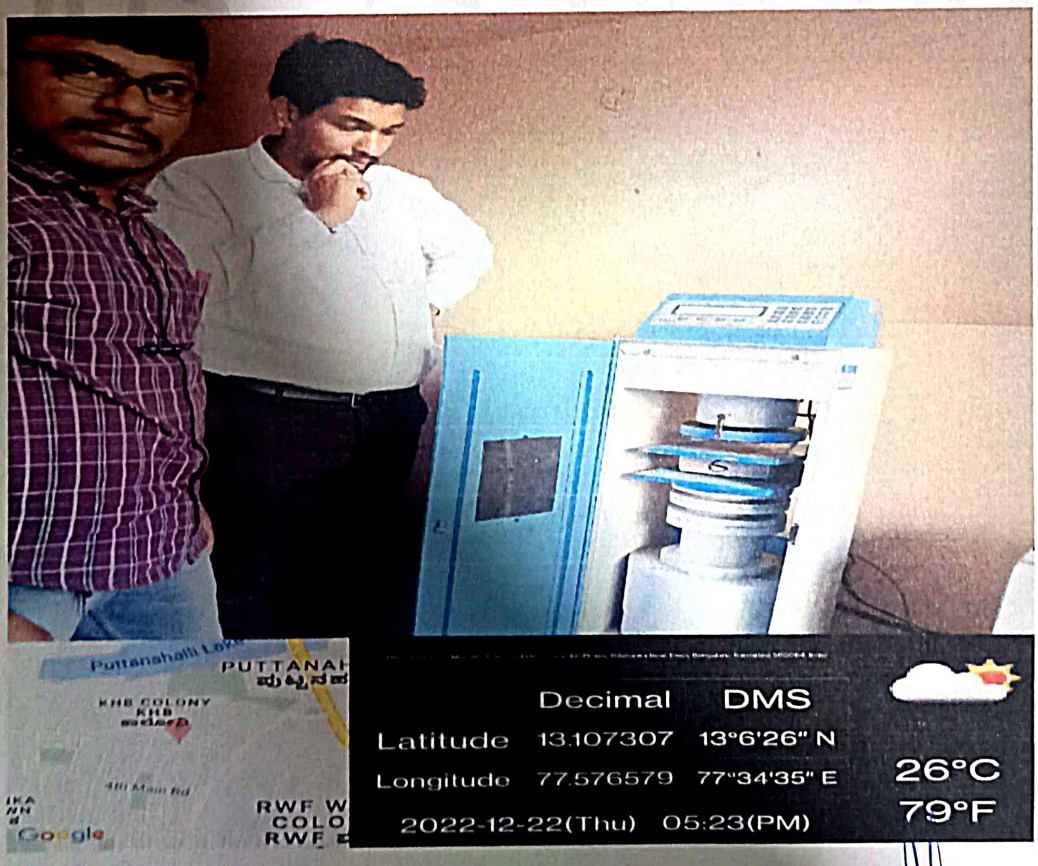
Construction of Stamped concrete, Interlock Building and, Bus shelter & providing Drinking water facility at 47 site and Footpath in 28 park, Sri Madhwa Mathideva park and Sandeep Unnikrishnan Park of Shanthinagar Assembly Constituency Under Amrutha Nagarothana Grants (PACKAGE-02).

Inter locking pavers Testing in PMC lab





ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು ಅಧೀಕ್ಷಕ ಅಭಿಯಂತರರು
ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ ವಿಭಾಗ ಯಲಹಂಕ ಉಪ-ವಿಭಾಗ ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ ವಿಭಾಗ ಯಲಹಂಕ ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ